

WHAT IS CLAIMED IS:

1. An automatic liquid handling system comprising:

a dispensing tip container having a plurality of holding portions for holding dispensing tips;

5 a dispensing head having attachment portions to which at least one dispensing tip is attached, wherein when one or more dispensing tips are attached to the attachment portions, the dispensing head is capable of performing sucking and expelling operations for sucking liquid in or expelling the
10 liquid out from the one or more dispensing tips;

moving means for moving the dispensing head;

a reagent container that holds reagent;

a microplate formed with a plurality of wells for holding specimen;

15 a control device that controls the sucking and expelling operations performed by the dispensing head and also controls the moving means to control movements of the dispensing head, the control device having input means for inputting one or more processes to be executed by the
20 dispensing head; and

dispensing tip arrangement calculating means for calculating an arrangement of the dispensing tips in the dispensing tip container based on information contained in the one or more processes input into the control device.

25 2. The automatic liquid handling system according to

claim 1, wherein the plurality of wells formed in the microplate is arranged in a matrix form defined by rows and columns, and wherein the information comprises information regarding a dispensing direction on the matrix form to
5 dispense the reagent into the wells of the microplate, and information regarding a range of the wells on each of the rows or each of the columns into which the reagent is dispensed.

3. The automatic liquid handling system according to
10 claim 2, further comprising a display for indicating an arrangement of the dispensing tips calculated by the dispensing tip arrangement calculating means.

4. The automatic liquid handling system according to
15 claim 3, wherein the display indicates the arrangement of the dispensing tips using different colors for each of the processes.

5. The automatic liquid handling system according to
20 claim 3, further comprising storage means for storing the arrangement of the dispensing tips calculated by the dispensing tip arrangement calculating means.

6. The automatic liquid handling system according to
claim 1, wherein the plurality of wells formed in the microplate is arranged in a matrix form defined by rows and columns, and the moving means moves the dispensing head in a
25 three dimensional space defined by X-axis, Y-axis, and Z-

axis, the moving means further swiveling the dispensing head
in a plane defined by the X-axis and the Y-axis wherein the
X-axis is oriented in a direction in which the rows extend
and the Y-axis is oriented in a direction in which the
5 columns extend.

7. The automatic liquid handling system according to
claim 6, further comprising another reagent container having
a plurality of elongated container portions arranged in
side-by-side to extend in a first direction, plural kinds of
10 reagents being held separately in the plurality of elongated
container portions.

8. The automatic liquid handling system according to
claim 6, wherein the reagent container has a plurality of
elongated container portions arranged in side-by-side to
15 extend in a second direction perpendicular to the first
direction, plural kinds of reagents being held separately in
the plurality of elongated container portions of the reagent
container.

9. The automatic liquid handling system according to
20 claim 6, further comprising another dispensing tip container
having a plurality of holding portions for holding
dispensing tips.

10. An automatic liquid handling system comprising:
a dispensing tip container having a plurality of
25 holding portions for holding a plurality of dispensing tips;

a dispensing head having attachment portions to which at least one dispensing tip selected from the plurality of dispensing tips is attached, wherein when one or more dispensing tips are attached to the attachment portions, the dispensing head is capable of performing sucking and expelling operations for sucking liquid in or expelling the liquid out from the one or more dispensing tips;

moving means for moving the dispensing head;

a reagent container that holds reagent;

a microplate formed with a plurality of wells for holding specimen;

a control device that controls the sucking and expelling operations performed by the dispensing head and also controls the moving means to control movements of the dispensing head, the control device having input means for inputting one or more processes to be executed by the dispensing head; and

reagent volume calculating means for calculating a volume of the reagent to be dispensed into the wells of the microplate based on information contained in the one or more processes input into the control device.

11. The automatic liquid handling system according to claim 10, further comprising reagent arrangement calculating means for calculating an arrangement of the reagent in the reagent container based on information contained in the one

or more processes input into the control device.

12. The automatic liquid handling system according to claim 11, further comprising a display for indicating the volume of the reagent calculated by the reagent volume
5 calculating means and also the arrangement of the reagent calculated by the reagent arrangement calculating means.

13. The automatic liquid handling system according to claim 12, wherein the display indicates the arrangement of the reagent using different colors for each of the processes.

10 14. The automatic liquid handling system according to claim 11, further comprising storage means for storing the volume of the reagent calculated by the reagent volume calculating means and also the arrangement of the reagent calculated by the reagent arrangement calculating means.

15 15. The automatic liquid handling system according to claim 10, wherein the plurality of wells formed in the microplate is arranged in a matrix form defined by rows and columns, and the moving means moves the dispensing head in a three dimensional space defined by X-axis, Y-axis, and Z-
20 axis, the moving means further swiveling the dispensing head in a plane defined by the X-axis and the Y-axis wherein the X-axis is oriented in a direction in which the rows extend and the Y-axis is oriented in a direction in which the columns extend.

25 16. The automatic liquid handling system according to

claim 15, further comprising another reagent container having a plurality of elongated container portions arranged in side-by-side to extend in a first direction, plural kinds of reagents being held separately in the plurality of elongated container portions.

17. The automatic liquid handling system according to claim 15, wherein the reagent container has a plurality of elongated container portions arranged in side-by-side to extend in a second direction perpendicular to the first direction, plural kinds of reagents being held separately in the plurality of elongated container portions of the reagent container.

18. The automatic liquid handling system according to claim 15, further comprising another dispensing tip container having a plurality of holding portions for holding dispensing tips.